REMARKS

Claims 1-10 are pending. Claims 1-9 have been amended. No new matter has been presented.

Claims 1-10 were rejected under 35 USC 112, first paragraph, as containing subject matter which was not described in the specification. This rejection is respectfully traversed.

The Examiner asserts that "the specification does not describe a method of designing the technical system; and providing a substitute model that describes measurement data of a predetermined system does not constitute designing a technical system." Applicants respectfully disagree

Although it may be true that providing a substitute model that describes measurement data of a predetermined system does not constitute designing a technical system, Applicants disagree with the Examiner's assertion that the instant specification does not describe a method of designing a technical system. A "system" is commonly well known as a sum of components, the components comprising relationships to each other. Thus "identifying a system configuration in terms of subsystems and components to meet specifications" is inherently disclosed by using the term "system." Moreover, the specification refers to preconditions (paragraph [0002]), where each precondition is formulated as a target function. Thus modeling a system using mathematical models is actually disclosed in the specification. Furthermore, the specification states that the optimization of a target function with regard to the other target functions is the general object of the invention. Thus a target function, obviously comprising input parameters and target values, is a base for simulating the operation of the system to verify that the system will perform as specified. By the term "optimization" used in the English specification, "applying an iterative process to continuously refine the configurations and the models based on the simulation results and performing further simulations" is disclosed. The target functions are used for calculating and continuously refining the configurations.

Simulation can be also considered to be as simple as calculating. Moreover the term "optimization of the target functions" includes that "the process terminates when a design that meets all specifications has been identified." Thus, all designing steps for achieving an optimized system are originally disclosed in the specification. Applicants therefore request that this rejection be withdrawn.

Applicants wish to point out that the Examiner's proposed claim interpretations are not correct and are contrary to the actual claim language. Applicants do not intend to claim a method of controlling a technical system. Applicants respectfully request that the claims be interpreted as they were intended and in accordance with the actual claim language.

Claims 1-7 were rejected under 35 USC 101 as being directed to non-statutory subject matter. This rejection is respectfully overcome in accordance with the foregoing amendments. Applicants request that this rejection be withdrawn.

Claims 1-3 and 8-10 were rejected under 35 USC 102(e) as being anticipated by Klimasauskas, U.S. Patent 6,278,962. This rejection is respectfully traversed.

This rejection is in view of the Examiner's proposed claim interpretations listed on pgs. 4 and 5 of the Action, where the Examiner stated that the claims were being interpreted as a method and an apparatus for controlling a technical system. However, since support does exist for the claims as they are currently recited, the claims should be interpreted as being a method and apparatus for designing a technical system.

Since claim 1 recites "a computer readable medium containing program instruction for designing a technical system," and Klimasauskas teaches controlling a technical system, not designing one, the features of claim 1 are not taught by Klimasauskas.

Klimasauskas discloses an error correction analyzer which is trained to capture the residuals between the primary analyzer outputs and the target process variables (col. 3, line 30 - 33). The data determined by the substitute model (the primary analyzer model) is compared with target

process variables. At col. 7, lines 53 -57, Klimasauskas discloses computing a difference between the output of the primary analyzer 132 and the target output variable 115. The examiner considers that the target process variables correspond to measurement data of the predetermined system.

Klimasauskas does not teach that an explicit numerical value for the quality of the substitute model (132) is determined on the comparing result (135, figure 3). Moreover Klimasauskas also fails to disclose a numerical value for the quality of the measurement data. Based on the difference between the output of the primary model (132) and the target output, a corrected output (139) is generated for a distributed control system (DCS) 124.

The Examiner also considers that "adapting the substitute model from the numerical value for the quality to be as high of a quality as possible" is disclosed in col. 3, lines 40-42; col. 6, lines 42-48. Applicants respectfully disagree. Klimasauskas does not disclose adaptation of the primary analyzer respectively "adapting the substitute model from the numerical value for the quality to be as high of a quality as possible" since no numerical value for a quality is mentioned.

The analyzer of Klimasauskas is merely trained and tested and its output is provided to a model parameter module 118 for embodying the parameters derived during the training process. At the end, merely the "DCS 124" is provided with data. Moreover error correction models (136, 131) are used to handle and correct the difference between the substitute model and the real plant process. Again this means that based on this difference, no quality values are generated. According to the claimed invention, by using a numerical value for a quality of the substitute model, a direct way of improving the substitute model is provided.

The primary analyzer of Klimasauskas is not actually adapted with regard to its quality for designing the technical system, but is designed for controlling a process. In Klimasauskas, applying the substitute model adapted in a control of the plant is disclosed. In contrast, claim 1 recites applying the substitute model adapted with regard to its quality in a design of the technical system. Based on Klimasauskas, substitute models are used for improved control of a plant process. Thus, Klimasauskas fails to disclose the use of a "numerical value for quality of the substitute

model." Furthermore, Klimasauskas fails to disclose a numerical value for a quality of measurement data respectively "target output variables." Klimasauskas likewise fails to disclose adapting the substitute model from the numerical value for the quality to be as high of a quality as possible. Klimasauskas also fails to disclose the design of a technical system and only discloses the primary analyzer as a "data-derived linear model" which is merely trained and tested. According to Klimasauskas, the output of the hybrid development analyzer or model 114 is provided to a model parameter module 118 for embodying the parameters derived during the training process to be used by a model 122. The output of the model 122 is provided to a distributed control system (DCS) 124. The DCS system 124 supervises the control and data acquisition process in the plant. Accordingly the primary analyzer or model 132 is not adapted from a numerical value for the quality to be as high of a quality as possible. Merely the DCS system 124 is improved. According to Klimasauskas, the improvement is based on "training" (column 6, line 43).

For the foregoing reasons, claims 1-3 and 8-10 are allowable in view of the cited art. Applicants request that this rejection be withdrawn.

Claims 4 and 5 were rejected under 35 USC 103(a) as being unpatentable over Klimasauskas in view of Amado, U.S. Patent 5,701,400. This rejection is respectfully traversed.

Claims 4 and 5 are dependent on claim 1, and are therefore allowable in light of the foregoing remarks and Amado's failure to teach that which is not shown in Klimasauskas. Applicants request that this rejection be withdrawn.

Claims 6 and 7 were rejected under 35 USC 103(a) as being unpatentable over Klimasauskas in view of Hoffberg, U.S. Patent 5,920,477. This rejection is respectfully traversed.

Claims 6 and 7are allowable in light of the foregoing remarks and Hoffberg's failure to teach that which is not shown in Klimasauskas. Applicants request that this rejection be withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to

withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 4491220116600.

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Respectfully submitted,

By 

Deborah S. Gladstein
Registration No.: 43,636
MORRISON & FOERSTER LLP
1650 Tysons Blvd, Suite 300
McLean, Virginia 22102
(202) 778-1646